

rhythmical contractions in the wing membranes of bats (Luchsinger).

In the Botanical Section M. Buser read a paper on Swiss willows, and Prof. Schnetzler gave some observations on the vegetation of *Lathraea squamaria* on tree-roots.

To the Section of Geology M. Jaccard submitted a project of maps of the "erratic phenomenon" in Switzerland, on the plan of those constructed by MM. Falsan and Chantre for the Rhone Valley. Dr. Rothpletz discussed the rôle of faults in the geology of the Alps, showing that these are by no means exceptional, and deserve more study than they have hitherto had. Dr. de la Harpe presented a collection of Egyptian nummulites. Dr. Gillieron had a paper on the age of the red schists of the Simmental. Prof. Mayer-Ermann furnished proof that the Loire must have flowed into the Parisian Gulf of the North Sea during the whole Eocene period, and that it was only at the end of the Inferior Neogene or Aquitanian epoch that it made the bend at Orleans and entered the Atlantic. The Pleistocene of Central Europe formed the subject of an instructive paper read by Dr. Rothpletz at the first general meeting.

In Medicine a paper was read by Dr. Bircher on the extension of deaf-mutism in Switzerland, and its relations with goitre and cretinism. He finds that these three are merely different manifestations of one and the same principle of degeneracy of race, a principle which, in Switzerland, is endemic in the Triassic, Marine Molassic, and Eocene formations.

### THE ARCHÆOLOGICAL CONGRESS AT TIFLIS

THE proceedings of this Congress, recently held at Tiflis, were both interesting and animated. No less than 700 members arrived at Tiflis from various parts of the Caucasus, and fifty-five from various parts of Russia. The foreign members were few—Prof. Virchow, who took advantage of his stay in the Caucasus to make an excursion to Ossetia, and Messrs. Aeger and Hubsch from Vienna. The Congress was opened by Count Ouvaroff in one of the halls of the palace, before an audience of about 800 persons. The President of the Congress, M. Komaroff, pointed out that the Congress had met with much sympathy from all interested in the study of the Caucasus, as well as much help from the teachers of primary and secondary schools, who had sent in many interesting objects for the exhibition. We notice among the objects exhibited a most interesting collection of bronze antiquities from Ossetia, Bosphorian antiquities from a *kourgan* of the province of Kouban, stone implements from Tzalka, Georgian ornaments and stone implements from the provinces of Novgorod and Tver. Ossetia has been known for many years for a great find of interesting bronze implements, of figures of animals, curved hatchets with spirals and zig-zag ornaments and with figures of animals, as well as religious objects belonging to some unknown worship; the collection, which was bought some time ago by M. Chantre, is very complete, and will soon be described by him. The new collections from a *kourgan* at the Sievers Station consist of massive gold, and represent subjects of Greek mythology. On the same day the excellent Caucasian museum which was founded several years ago, but was closed for two years for unknown reasons, was re-opened.

Count Ouvaroff made an interesting communication on the remains of the Stone period which were found near Irkutsk, on the bank of the Angara River, at Talminskoy village. Many human skeletons, with stone and bone implements, and perforated teeth of animals, were found there, together with hatchets of jade (nephrite), which numbered as many as two hundred. This is the first find of jade implements in graves in Russia. This communication gave rise to an interesting discussion, during which M. Moushketoff, the well-known traveller in Turkestan, spoke of the great monolith of nephrite at Samarcand, on the grave of Tamerlane. It has the shape of a parallelopiped, 7·8 feet long, 1·5 foot wide, and 1·2 foot high, and weighs about 1800 pounds, whilst the greatest pieces of nephrite which are found in boulders do not weigh more than 700 or 750 pounds. It is well polished, but is broken through its centre. The rock resembles very much that of Khotan. As to the places where nephrite is found *in situ*, our knowledge is still very limited. Messrs. Shaw and Hermann Schlagintwert have seen nephrite mines in the Kwen-Lun, close by Balakctchi, at a height of 12,000 feet; according to Dr. Stoliczka it appears there as veins in chlorite-slates and quartzites. Two other places

where nephrite is found are known north of the Kwen-Lun Mountains, close by the Kilian Pass, at a height of 6070 feet, and near Kamat village on the highway to Khotan, at a height of 5790 feet; a fourth is presumed to be at the sources of the Yourson-tush, or Khotan River. But the nephrite implements which we found in graves were mostly made from boulders of this rock, which are often found in Eastern Siberia on the shores of Lake Baikal, and on the Boutogol Mountain in the Sayan Highlands; however, we do not know that nephrite was found *in situ* in these latitudes. All implements which are in the St. Petersburg museums were made of nephrite from Eastern Siberia, whilst the Kwen-Lun jade is used only in recent Chinese products.

Prof. Samokvasoff made a communication on his finds in the graves on the Caucasus, in the neighbourhood of Pyatigorsk. He excavated about 200 graves belonging to the Stone, Bronze, and Iron periods. In the larger graves he found bronze implements together with stone ones, and as there are in these graves, together with bones of sheep, several split human bones which do not belong to skeletons, he supposes that during the Bronze period the inhabitants of this part of the Caucasus were Anthropophagists. This opinion, however, was not concurred in by the majority of members of the Congress.

The chief work of the Congress was in the branches of History and Antiquities; but we notice also a special sitting for communications in French and German, during which several papers were read connected with the natural sciences. Thus Dr. Obst, Director of the Leipzig Ethnographical Museum, read a paper upon the results of the statistical researches on the colour of hair and eyes in Saxony, and M. Smirnof gave the results of the same inquiries with the Armenians and Georgians of Transcaucasia, as well as with the Russian population of the provinces of Kouban and Stavropol. Out of 2500 Armenian children there were 63 per cent. of dark, 4 per cent. of fair, and 33 per cent. of mixed (fair hair with dark eyes, or *vice versa*). Of 1400 Russian children there were only 14·5 per cent. of dark, and it is deserving of notice that M. Smirnof could not discover any difference between Great Russians and Little Russians, the number of fair children being 33·3 per cent. in the former, and 32·0 in the latter, whilst the mixed make respectively 52·2 and 53·5 per cent. As to Georgians and Imers, the observations are not sufficiently wide, but it may be stated that purely dark children are less numerous (50 to 55 per cent.) than with Armenians.

Prof. Virchow gave a long and interesting lecture on the chief problems of the Ethnology and Archæology of the Caucasus, accompanied with some remarks on the civilisation of its former inhabitants. Speaking on the usually-received opinion that the Caucasus was the highway for populations coming from Asia to Europe, Prof. Virchow expressed some doubts as to the crossing of the Caucasian passes by whole tribes at a time when the communications were so difficult and the ice-covering descended lower than now. It would be most important, therefore, to know if the first inhabitants of the Caucasus came from the north or from the south. Speaking further of the Ossetians, Prof. Virchow was astonished not to find among the adult population a single true fair type, which might seem contradictory of former opinions; only among children did he find fair-haired individuals with rosy Flemish cheeks. On the other hand, some measurements have brought him to the conclusion that the Ossetian skull is short and high, very different from the German type of skulls. Dolichocephalic skulls are very rare, and show that the tribes of the Caucasus have undergone much mixture with other people. As to the antiquities found in Ossetia, Prof. Virchow considers that the civilisation they speak of was far more recent than that discovered by Dr. Schliemann at Troy, as it does not contain stone implements, but has, on the contrary, curved fibulæ which were unknown at Hissarlik. The ornaments of the Ossetian bronze-implements, and especially the figures of stags, horses, and mountain-sheep, seem to show a connection between the former inhabitants of the Caucasus with those of the Altai Mountains.

### UNIVERSITY AND EDUCATIONAL INTELLIGENCE

OXFORD.—The following are the courses of instruction in natural science to be given this term at Oxford:—Prof. Odling lectures on the atomic theory, Mr. Watts on organic, Mr. Fisher on inorganic chemistry, and Mr. F. D. Brown on physical

chemistry. The Linacre Professorship of Physiology, vacant by the death of Prof. Rolleston, will not be filled up in time for the new professor to undertake this term's lectures. Mr. Hatchett Jackson will give the professorial lectures, taking the nervous system for his subject; Mr. Thomas will lecture on comparative anatomy; and Mr. Robertson will form a class for practical microscopy. Prof. Pritchard will give a course of lectures on the theory of the transit instrument and on the planetary theory, and will form an elementary class three evenings a week at the University Observatory. Prof. Lawson lectures on vegetable histology at the Botanic Garden; Prof. Maskelyne on crystallography; and Prof. Prentwich on the principles of geology at the Museum. Prof. Westwood gives informal instruction on the Arthropoda every afternoon.

At Christ Church Mr. Vernon Harcourt gives a course of lectures on the metallic elements, and Mr. Barclay Thompson a course on the Lemnidae and Simiade. At Magdalen Mr. Yule continues his demonstrations on the chemistry of the tissues and secretions. At Balliol Mr. Dixon forms a class for the determination of the composition and vapour-density of organic substances. At Exeter Mr. Morgan lectures on histology.

At Trinity College the Millard Scholarship in Natural Science has been awarded to Mr. A. E. Field from the Modern School, Bedford.

### SCIENTIFIC SERIALS

*The American Journal of Science*, September.—Benjamin Peirce.—Emerald green spodumene from Alexander County, North Carolina, by E. S. Dana.—Objects and interpretation of soil analyses, by G. W. Hilgard.—Mineralogical notes, by B. Silliman.—Liquefaction and cold produced by the mutual reaction of solid substances, by E. M. Walton.—Spectrum of arsenic, by O. W. Hartington.

*Journal of the Franklin Institute*, September.—On the effect of prolonged stress on the strength and elasticity of pine timber, by Prof. Thurston.—Relative economic efficiency of Corliss condensing and non-condensing engines, &c., by Chief-Engineer Isherwood.—Discussions on rails (continued).—Burnishing and ductilising steel, by Mr. Reese.—Industrial education from a business standpoint, by Mr. Clark.

*Annalen der Physik und Chemie*, No. 9.—On the relation of friction-constants of mercury on temperature, by S. Kock.—On the internal friction of solutions of some chromates, by K. F. Slotte.—Some experiments on heat-conduction, by C. Christiansen.—On the vapour-tensions of liquid-mixtures, by D. Konowalow.—On an electro-dynamic balance, by H. Helmholtz.—On the change of the thermo-electric position of iron and steel by magnetisation, by V. Strouhal and C. Barus.—The cycle obtained through the reaction current of electrolytic transference, and through evaporation and condensation.—On the electromagnetic rotation of the plane of polarisation of radiant heat in solid and liquid substances, by L. Grunmach.—The height of the earth's atmosphere, by A. Kerber.—On the courses of a free particle on the rotating earth-surface, and their significance for meteorology, by A. Sprung.—On the ether as a means of action at a distance, by G. Helm.—Remark on the paper on a new volumometer, by A. Paalzow.

*Journal de Physique*, September.—The principle of conservation of electricity, or second principle of the theory of electric phenomena, by G. Lippmann.—Researches on the refringent power of liquids, by B. C. Damien.—The devioscope, or apparatus showing directly the ratio between the angular velocity of the earth and that of any horizon round the vertical of a place, by G. Sire.—Processes for making figures for demonstrations with the aid of projections, by M. François-Franck.—Notes from the *Journal of the Russian Physico-chemical Society*.

*Archives des Sciences physiques et naturelles*, August 15.—Comparative study of different qualities of steel as regards magnetisation and permanence of their magnetic power, by M. Pictet.—Some theorems of thermodynamics and their application to the theory of aqueous vapour, by G. Cellierier.—On Comet *b* of 1881, by MM. Thury and Meyer.—On the comet of August, 1881, by M. Meyer.

*Bulletin de l'Académie Royale des Sciences de Belgique*, No. 7.—On bicarbonate of ammonia, by M. Melsens.—Some experiments on thin liquid films, by M. Plateau.—Effects of lightning on trees placed near a telegraph wire, by M. Montigny.—

Analysis of the light of Comet *b*, 1881, by M. Fiévez.—On the theory of binary forms with several series of variables, by M. Le Paige.

*Rivista Scientifico-Industriale*, August 15.—On the causes of earthquakes, by Dr. Lucchetti.—The Pliocene fossils of Sambenedetto del Tronto, by Prof. Spada.

September 1.—Measurement of velocity on railways, by A. Milesi.—Automatic apparatus for coiling metallic wires (with silk or cotton), by G. Serravalle.

*Verhandlungen des naturhistorischen Vereins der preussischen Rheinlande und Westfalens*, 1880, Second half.—Wandering tones, by H. Reauleaux.—Geognostic results of earth-boring near the infantry barracks in Osnabrück, by W. Treckner.—On the application of the electro-dynamic potential to the determination of ponderomotive and electromotive forces, by R. Clausius.—Description of the spiders hitherto observed at Bonn, by P. Bertkau.

1881.—First half.—The quartzite and slate on the eastern border of the Rhine slate hills and their neighbourhood, by C. Chelins.—On the distribution of animals in the Rhöngebirge and the Main valley with reference to Eifel and the Rheintal, by F. Leydig.—Contributions to the insect-fauna of the coal-formation of Saarbrücken, by F. Goldenberg.

*Memorie della Società degli Spettroscopisti Italiani*, July.—Protuberances observed at Rome during the first quarter of 1881, by P. Tacchini.—Two solar regions in constant activity during 1880, by the same.—On the distribution of spots, faculae, and protuberances on the sun's surface during 1880, by the same.—On direct and spectroscopic solar observations made at Rome in the first quarter of 1881, by the same.

### SOCIETIES AND ACADEMIES

#### VIENNA

Imperial Academy of Sciences, October 6.—V. Burg in the chair.—The following papers were read:—T. Singer, on secondary degeneration in the spinal marrow of dog.—R. Fribram and Al. Handl, on the specific viscosity of liquids and its relation to the chemical constitution.—James Moser (Cambridge), on the microphonic action of selenium-cells.—V. Dvorak, on some acoustic phenomena of motion, especially on the acoustic radiometer.—Beh. Brauner, contributions to the chemistry of cerium metals.—E. Goldstein, on the band-spectrum of air.—T. Schlesinger, a sealed packet relating to the unity of natural philosophy.

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